USAREUR Range Safety

USAREUR Range Safety

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USAREUR Safety Office
Range Safety
Systems/Ammunition Safety

USAREUR Range Safety

Agenda

Overview of Range Safety

ESAREUR Specific Range Safety

What's New …

RANGE SAFETY REQUIREMENTS

- AR 385-63, 19 May 2003

  prescribes Department of the Army and Marine Corps range safety policies, procedures, responsibilities, and standards for firing ammunition, guided missiles, and large rockets.

- The AR Implements DA Pam 385-63, 10 April 2003, as Minimum Standards.

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USAREUR Supplement 1 to AR 385-63

- The UE Supplement was last revised in 1985 and was rescinded in May 2003 when the AR was republished.
- A Draft UR is currently being processed for signature later in 2005. It will be streamlined to address current relevant requirements.
- USAREUR has long used the UE Supplement for Requirements of Engineered Containment Structures on Ranges.

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AR 385-63, 19 May 2003

- 2–8. Range operations outside the United States
- “Standards and procedures contained in DA Pam 385-63 apply to range operations conducted by U.S. Armed Forces training outside the United States.“
- “Operations will be conducted according to U.S. and or host nation agreements, normally whichever is stricter.”

✓ USAREUR Regulation 385-63 is currently being drafted

Range Safety Program Goals

- Enhance safe, realistic live-fire training, to train as we fight.

- Protect personnel and property while improving combat readiness training and help prevent fratricide in combat.

- Protect civilian and military populations who live and work in the vicinity of live-fire training ranges.

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RANGE SAFETY

GENERAL PRINCIPLES

- Expose the minimum number of people to the smallest quantity of explosives for the shortest period of time consistent with mission.
- Develop and use surface danger zones (SDZ) that meet the minimum required containment of projectiles
- Develop operational procedures to supplement Surface Danger Zone shortcomings.
- Accept no unnecessary risks

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Commanders responsible for live-fire training ranges will establish a range safety program:

- Personnel are held accountable for range and explosive safety to the same extent that they are held accountable for mission accomplishment.

- Trained and qualified range control and safety professionals

Overall Training is managed by G-3
Ranges in USAREUR managed by 7th Army Training Command

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Range Safety Certification Programs

- Range safety certification programs programs will be used to train and qualify personnel in the duties of OIC and RSO for firing exercises and/or maneuver operations.
- Written certification by Battalion or Squadron Commander

ROIC/RSO Requirements

- Will generally not be assigned other duties (exceptions defined such as instructor pilots, artillery OIC)

- Who Can Be An OIC?
  - Commissioned Officer, WO, NCO (grade varies w/ system)
  - DA PAM 385-63, Table 1-1, lays out NCO rank requirements for different types of systems.
  - Further defined in Grafenwoehr Training Area SOP #1

FIRING RANGE

Defines Responsibilities:

BATTALION & SEPARATE COMPANY COMMANDERS

- Certify Qualified Personnel in writing
  - Range Officer-In-Charge (ROIC)
  - Range Safety Office (RSO)
- Assignments in conformance with AR 385-63 Matrix, Renewed Annually
- ROIC/RSO receive formal training

RANGE OIC RESPONSIBILITIES

- Correct Firing Points used
- Impact area clear
- Road Barriers/Guards in place where required
- Communication with Range Control

  maintained & redundant
- Only authorized ammunition used (per Range Records, SOPs)
- Cleared to fire by Range Control
- Misfires cleared IAW TM
- Ensures record of Munitions Fired (Range Journal)

RANGE SAFETY OFFICER

RESPONSIBILITIES:

- Conduct safety briefing 1 hour before firing (min
- Ensure firing is conducted within SDZ
- Ensure SDZ is clear
- Ensure hearing protection is worn by all
- “CEASE FIRE” used for all unsafe acts
- Ensures all weapons are cleared after firing
- Tracks & Reports # and location of duds

Deviations

Waivers And Exemptions:

Waivers may be granted based on critical mission requirements that cannot be met by any other means.

The following personnel are granted waiver authority:

MACOM commanders

INCIDENT REPORTING

Accident vs. Malfunction Reporting

- Accidents will be reported IAW AR 385-40
- Malfunctions will be reported IAW AR 75-1
- Fires per AR 420-90

Ammunition Requirements

- Smoking is prohibited at firing pads, ready storage sites, and assembly sites.

- Positioning and issuing ammunition and explosives to minimize the potential for ignition from external sources, explosion, rapid burning, or sympathetic detonation per AR/DA PAM 385-63 and 385–64.

- Cardinal Principal – Quantity limited to amount to support efficient training

Ammunition Requirements

- Qualification and restriction of ammunition and explosives TB 9-1300-385

Use of nonstandard ammunition and explosive items is prohibited unless specifically approved by one CG, AMC (others such as MACOM, USASOC, with AMC informed.)

- Defective ammo reported to Range control and QASAS - and will not be fired. Duds reported to range control – EOD.
- Certified ammunition for overhead fire of unprotected troops (TB 9–1300–385 suspension: certified propellant, projectile, and fuze).

Field ASP

Ammunition:
- Off Ground
- Protected from weather
- Fire Extinguisher
- Secure from theft
- WP stored upright

RANGE WARNING SIGNS AND SIGNALS

- Scarlet Flag – Hot Range
- Blinking Red Light
- Limit Markers
  - ✓ Night: thermal sights, chemical lights
- Danger Signs – per 29CFR 1926.200b and UR 190-13
- Laser Firing Signs
- Danger Back-Blast Signs
- PPE Required Signs – hearing, eye, laser
- Post types of weapons and calibers allowed

Bilingual WARNING SIGNS AND

Ensure Proper Clearing of Weapon After Use

SURFACE DANGER ZONES (SDZs)

SDZs are constructed by the type of weapon/weapon system and the type of munitions.

- Small Arms/Machineguns
- Hand/Rifle Grenades
- Artillery
- Air Defense Weapons
- Chemical Agents, Smoke
- Lasers
- Rockets, Missiles
- Mortars
- Aerial Gunnery
- Live Fire Exercises
- Mines, Firing Devices

SURFACE DANGER ZONE

CONSTRUCTION

Unit Safety Rep must be able to apply a basic knowledge of SDZ's during the planning stages
of Range Exercises and Live Ammo Real World Missions_(tactical applications).

Control Measures (Safety) must be integrated into all plans to ensure SDZs remain clear of friendly or protected targets. (Fratricide)

Examples follow.

SDZs

SDZs have similar parameters
Determined by:

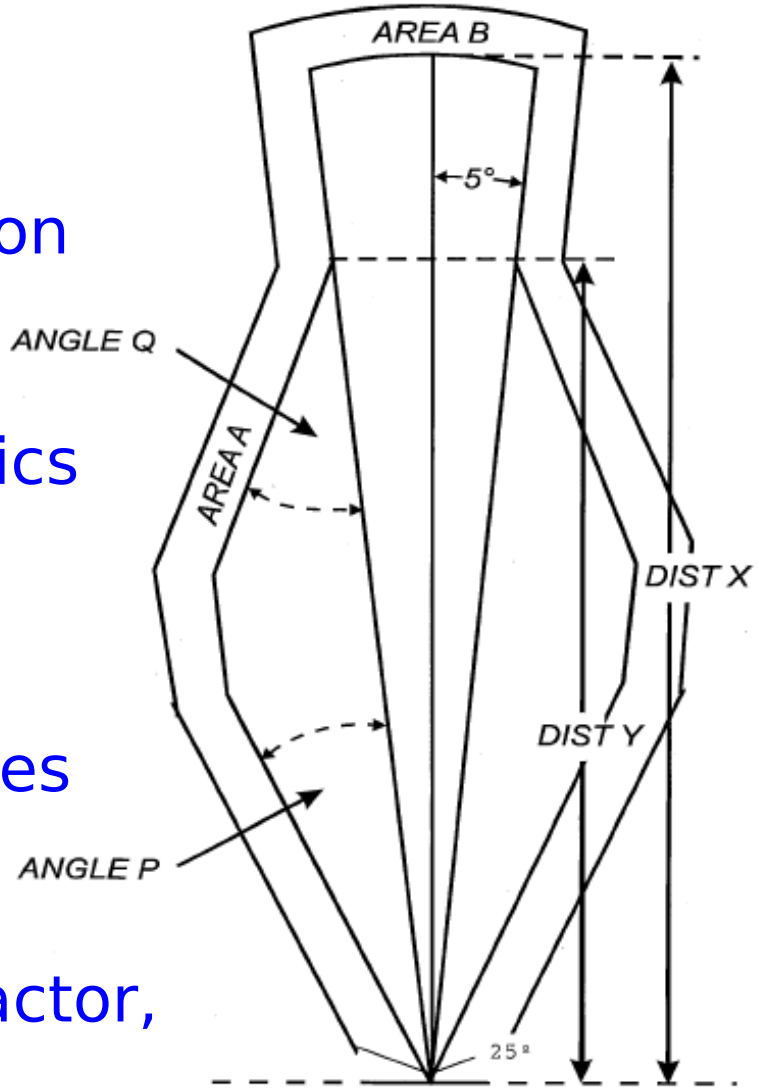
- computer modeling/simulation
- test

Size and shape vary:

- weapon system characteristics
- ammunition models

Be Aware of Rear Hazard Area around Firing Points/Launch Sites

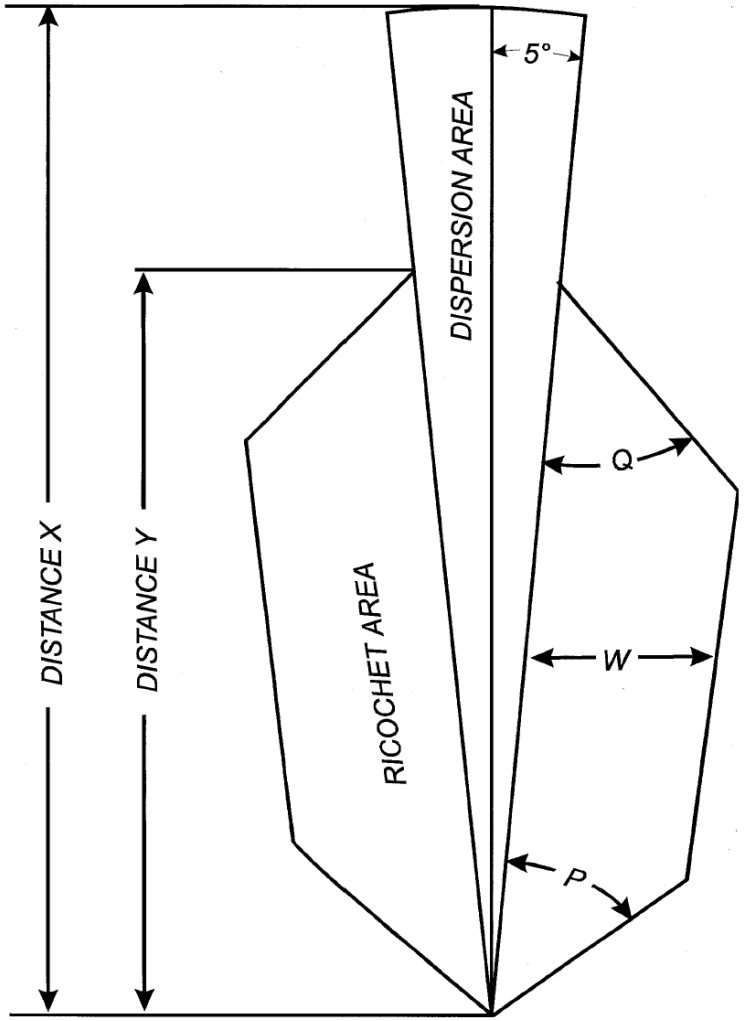
Min requirements: data, protractor, compass, plotting scale, pencil



SDZs – Bat Wing

- From App B, DA Pam 385-63
- Direct Fire Weapons
- Addresses ricochets
  - Varies with target materials
  - Earth, Water, Steel, Concrete
- Should be used when possible for Fire with Movement

- Ex.: direct-fire weapons without explosive projectiles.



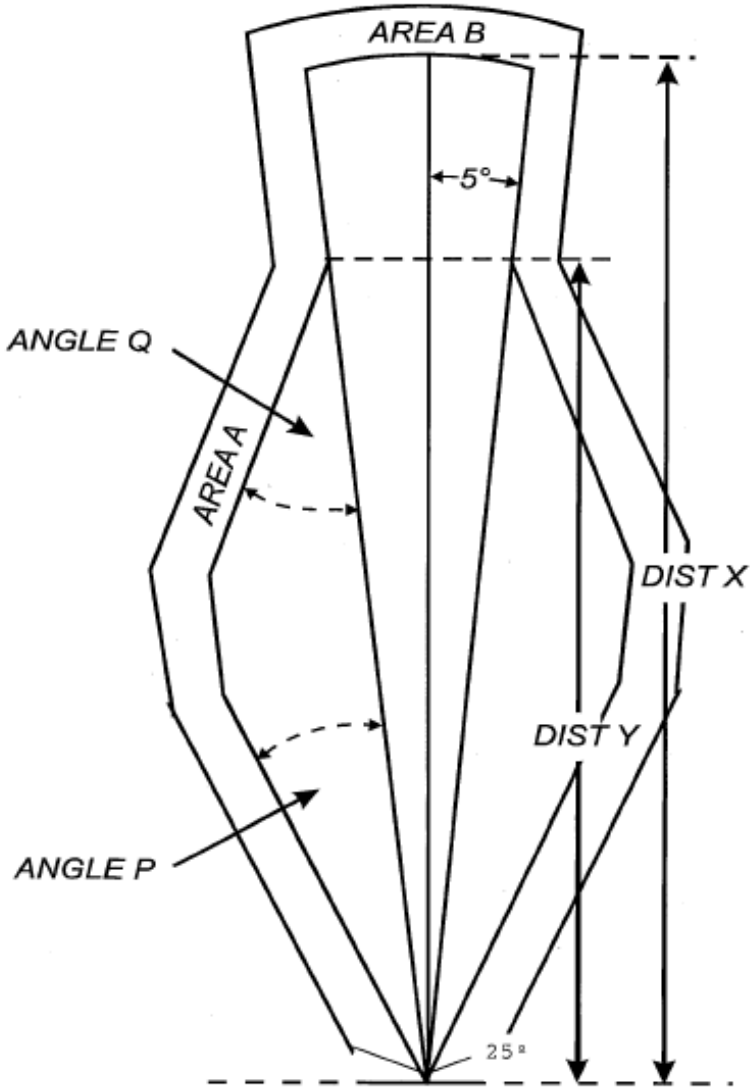
SDZs – Bat Wing

- For direct-fire weapons with explosive projectiles

  ✓HE
  ✓HEAT

  } Add Areas A & B

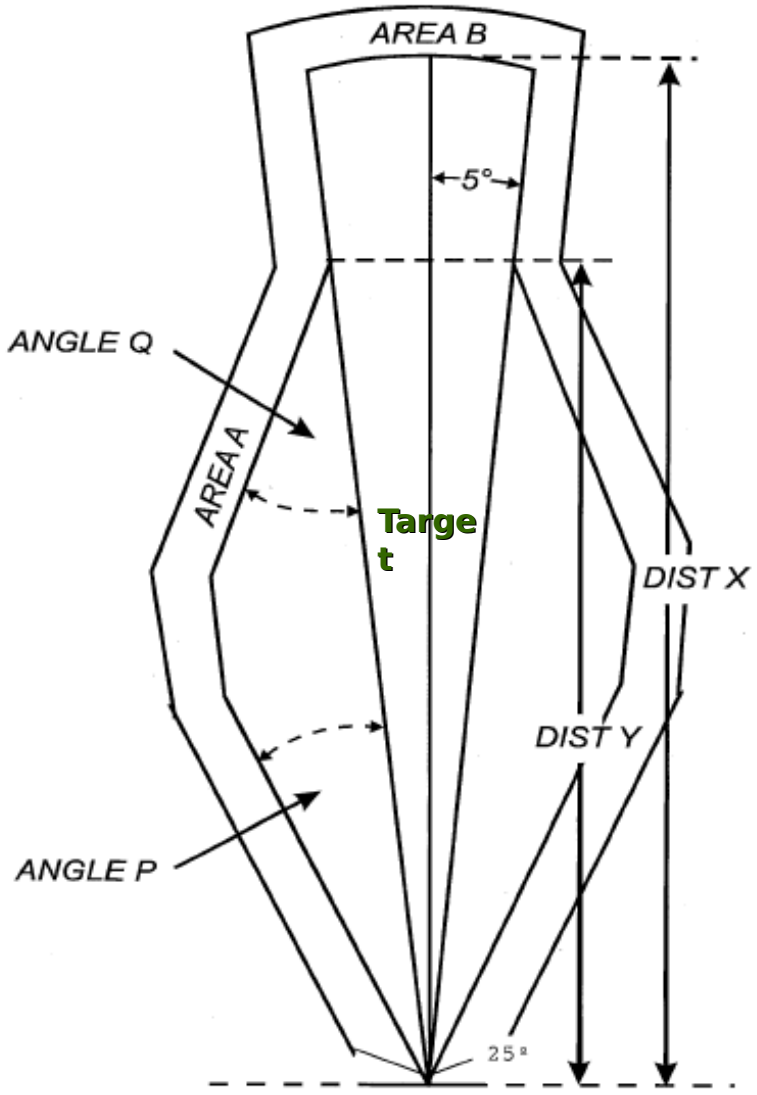
See DA Pam 385-63



SDZ Terms

Surface Danger Zone - land and air space used to contain round, fragments and debris

- Gun Target Line - Line from FP to Target, Distances: X (max flight), Y (max lateral ricochet), W (max width of ricochet)
- Dispersion Area – angle to sides of GTL
- Ricochet Area – areas adjacent to dispersion to contain ricochet includes angles P and Q
- Areas A & B – Secondary areas added to the side & rear of Impact & Ricochet Areas to account for terminal ballistic effects (Explosive Rounds)
- Rear range – refers to area behind ordnance weapon/launch point (Area



Example SDZ

Aviation Gunnery

- Firing operations, general requirements:
  - Qualified standardization instructor pilots (current) accompany pilots and gunners who are not qualified:
  - Qualified crewmember flight instructors or non-rated crewmember standardization instructors must accompany door gunners who are not current and qualified.

- Qualification:
  - approved qualification course,

    or qualification or transition training per approved POI
  - TC 1–210, FM 1–140, and the appropriate aircrew training manual.

SDZs – Aviation

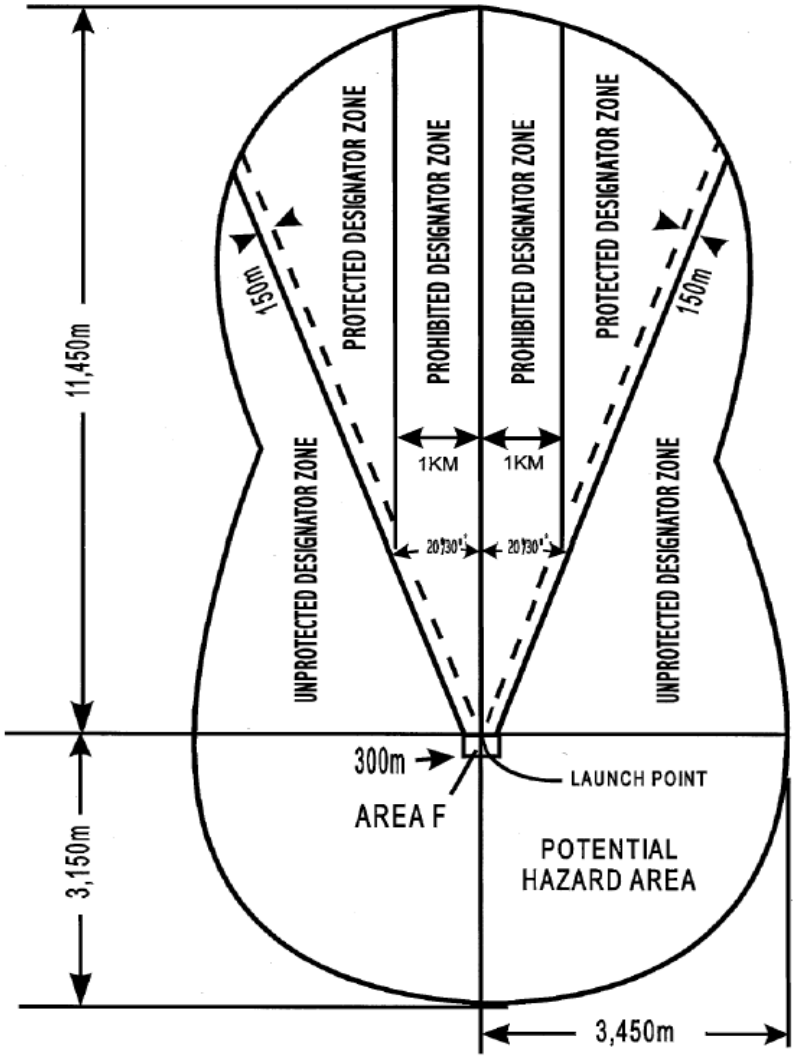
- Hellfire in Direct Mode

Considerations:
Lock on before/after launc

onboard/remote laser designator

Angle varies with scenario

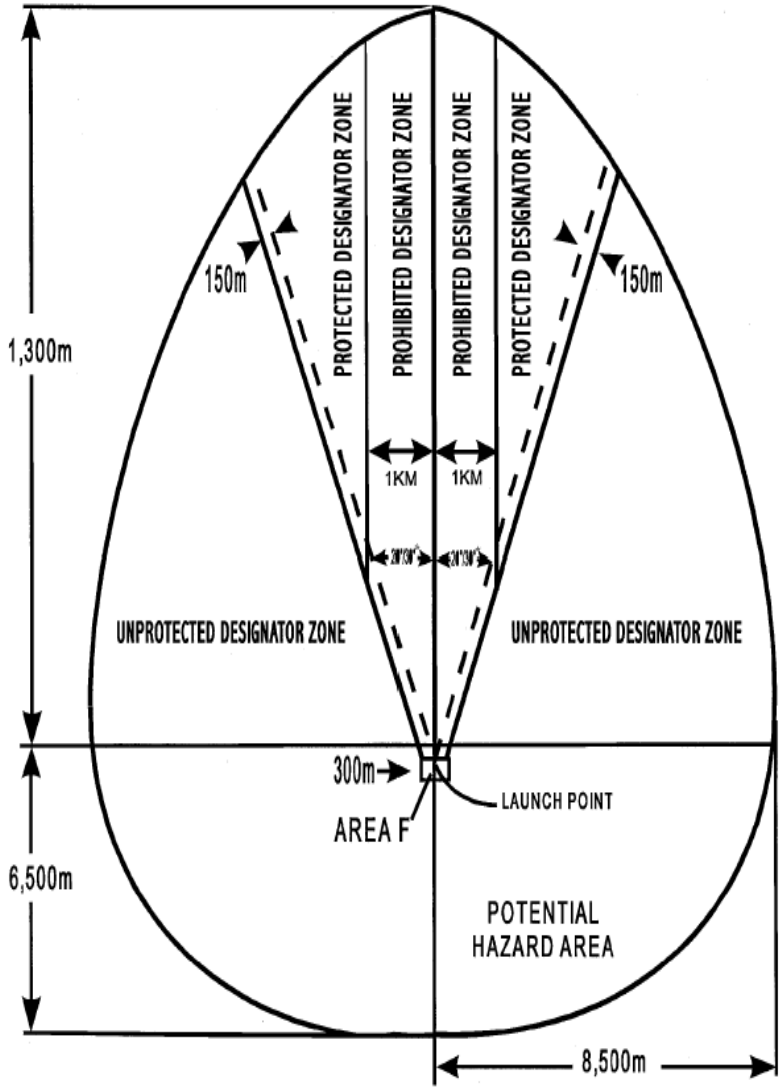
See DA Pam 385-63



SDZs – Aviation

- Hellfire in Indirect Mode

Considerations:
Indirect mode
With remote laser designatc

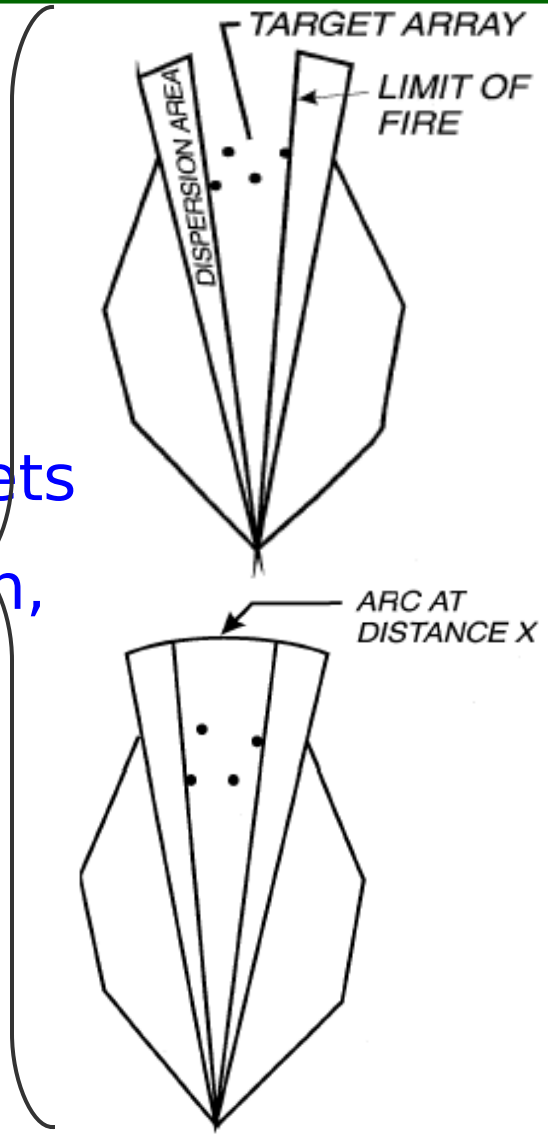


See DA Pam 385-63

Multiple/Composite SDZs

- Single SDZ can be expanded for:
  - Multiple firing positions
  - Multiple targets
- Split firing line to encompass targets

  E.g., Single firing position, Multiple targets



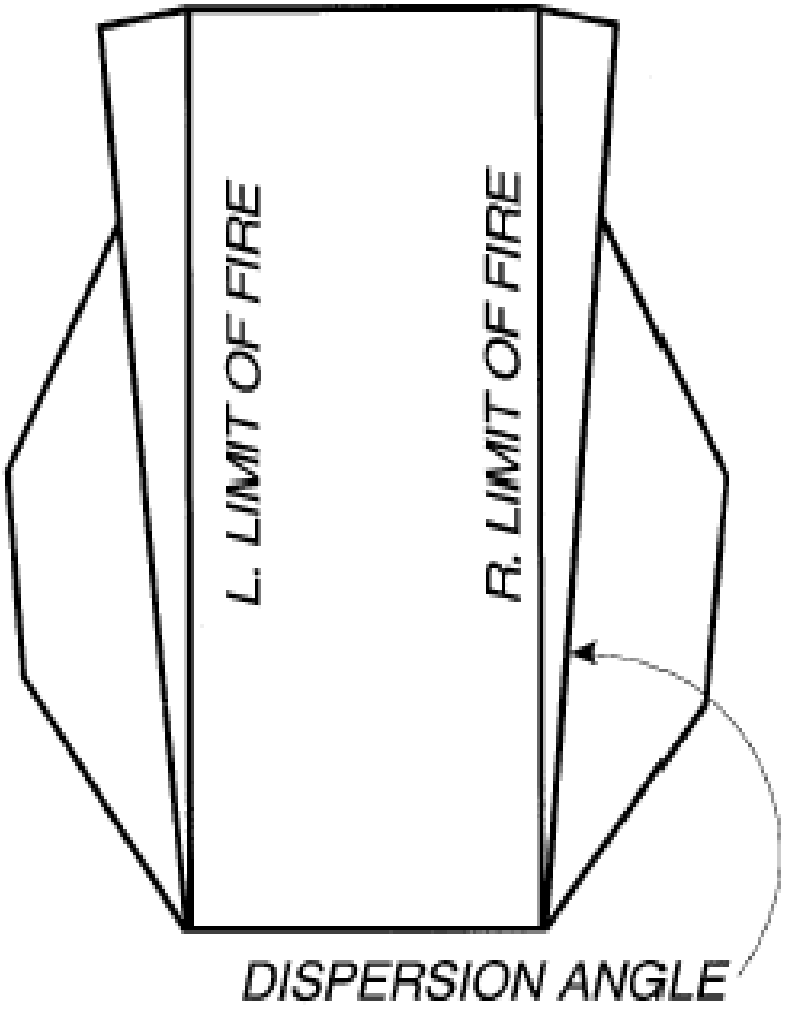
See DA Pam 385-63 for details

Composite SDZs

E.g., Multiple Firing Positions,
Multiple targets

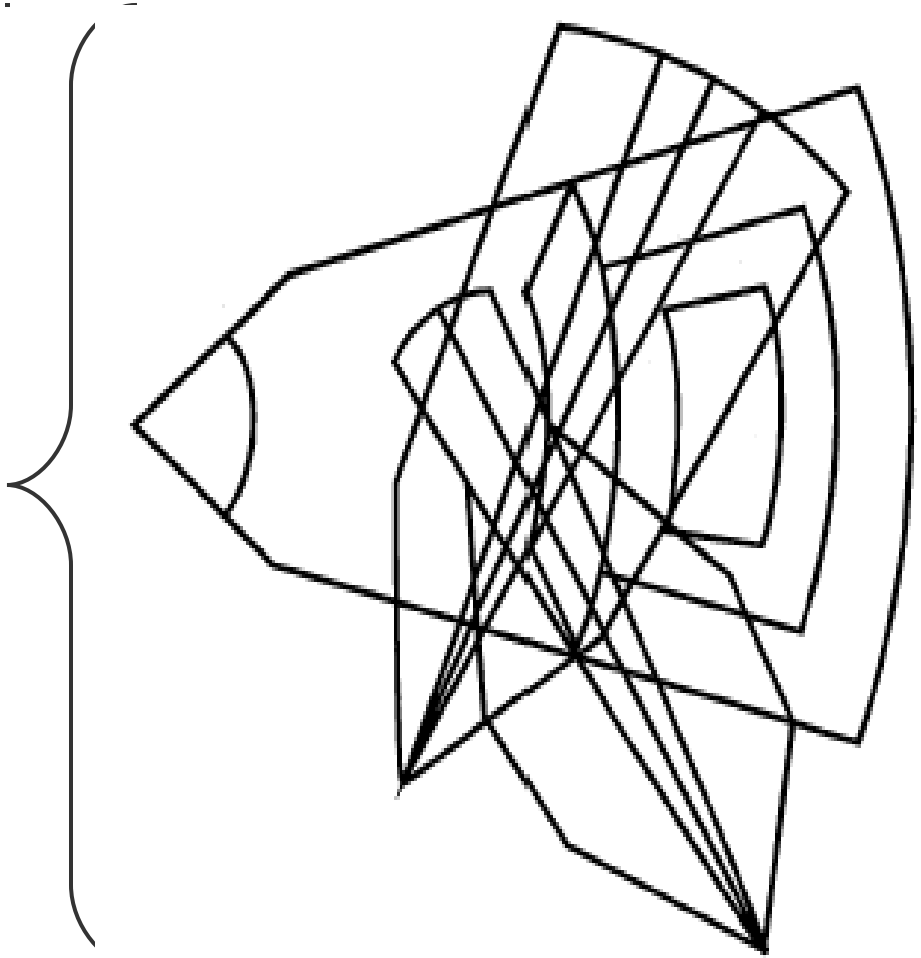
Also, Automated SDZ tools:
- reduces manpower
- three dimensional
- CAD
- digitized mapping (GIS)

See DA Pam 385-63



CALFEX

E.g., Multiple Systems
Multiple Firing Positions,
Multiple targets



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AR 385-63, 19 May 2003

2–2. Surface danger zones

- *c. **Baffled firing ranges*** - those providing containment of projectiles, fragments, and ricochets—designed and maintained according to host nation design requirements or approved United States Army Corps of Engineers designs do not require application of SDZ restrictions outside the baffled area.

- Approval authority for this type of range is the Army MACOM commanders. (In USAREUR delegated to AEAGA-S)

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Baffled Range Example

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What is New in Range Safety in USAREUR

- Range Design Topics
  - Gran traps
  - Lava Rock Range Floor
- Training to Prepare for OIF/OEF
  - Close Quarters Combat – Advanced Marksmanship Training – at LTAs
  - Convoy Live Fire Exercise – Familiarization at LTAs

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Gran Traps

- Used in USAREUR's Indoor Ranges
- Trial use started in some Outdoor Ranges
- Advantages:
  - Environmentally friendly (Pb, Si)
  - Ease/Cost of Maintenance

- Flammable?

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Gran Traps

Newly renovated November 2004

Following use with Tracer fire
Approximately 4500 in one se
w/ 1:4 tracer mix

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What is New in Range Safety

Range Floor

- Soil replaced with fine over course layers of lava rock/pumice termed Koemung 8, specified between 3 and 8 mm diameter with a depth of 20 cm.

- It is reported to enhance penetration and eliminate ricochets with less maintenance.

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What is New in LTA Range Safety

- Sand Removal and Replacement – Remove and replace the sand in the firing boxes.
- The new sand shall be 0-4 mm with majority exceeding 2 mm. The sand should be double washed river sand with low silica content.
- To prevent the sand from solidifying during cold weather salt shall be added.
- The mixture is 50 kg salt for every cubic meter of sand (or per ton). The sand / salt shall be mixed prior to placement.
- New sand shall be placed to set lines and grades

Sand salt mixture – prevents freezing and ricochets

USAREUR Range Safety

What is New in Range Safety

- Convoy Live Fire on Local Training Ranges
  - Ranges were designed for qualification in three firing stances
    - Standing
    - Kneeling
    - Prone
  - Vehicles must fit geometry of the range protective structures
    - Baffles
    - Berms
    - Bullet stop

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Sources of Information

- Regulations:
  - AR 385-63, Range Safety
  - Draft USAREUR 385-63, Range Safety
  - AR 600-55, Army Driver and Standardization Program
  - AE Reg 600-55
- Pamphlets:
  - DA Pam 385-63, Range Safety Standards
  - DA Pam 350-38 STRAC
- USACE Design Manuals
- Range Records – defines weapons, caliber, distance, positions (height limitations)
- 7th ATC Convoy DVD – “what right looks like”
- FMs –
  - 3-22.9 (Rifle Marksmanship)
  - 3-22.68 (Crew served MG)
  - 7-8 Infantry Rifle Platoon & Squad
  - 7-1 (Battle Focused)
  - 100-14 (Risk Mgt)
  - 3-06 Urban Operations
    - 3-06.11 Combined Arms (Urban)
  - 31-28 Spec Forces Adv Urban Combat
- TC 63-1 Warfighter Hdbk for CSS LFX
- TMs - Weapon Systems
- SOPs – Unit & Training Support Center – must address specific training
- CALL TTP 3-33

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- Commanders have Latitude in Training their Units

- Obtain USAREUR Safety Office Approval for Vehicles and Advanced Marksmanship Training (or 7ATC at MTA, as appropriate)
  - On LTAs: Safety Assessment of Engineered Containment System
    - Baffles
    - Berms
    - Bullet catches
    - Backstops
  - Update Range Records – Inspection and Assessment
  - SOP
    - Covers entire LTA generally
    - Usually Annex to address specific training
      - Convoy Live Fire Familiarization
      - Advanced Marksmanship Training

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Convoy Live Fire on Local Training Range

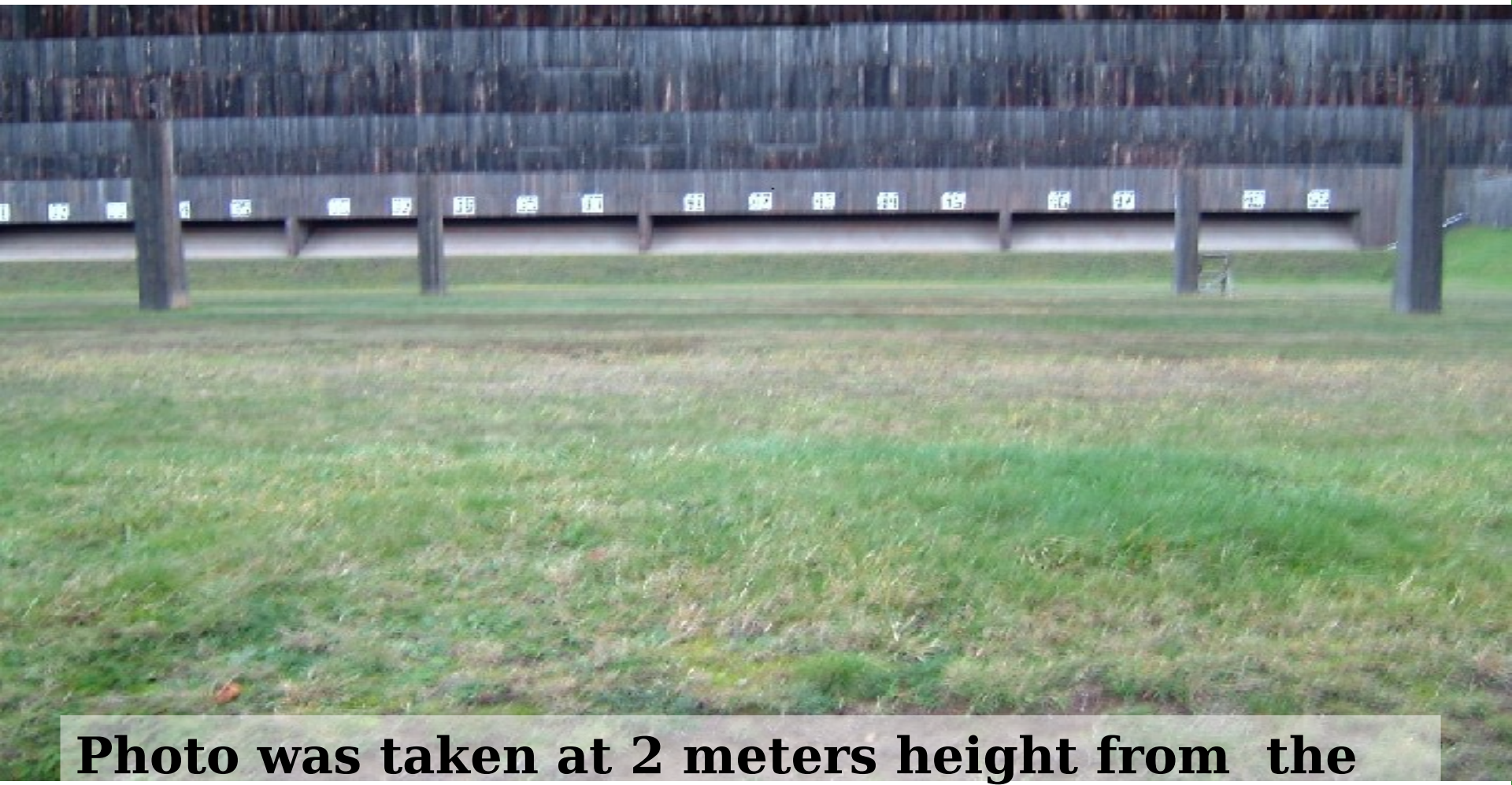

Photo was taken at 2 meters height from the base of the berm.

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- Advanced Marksmanship/Close Quarters Combat Training
  - References FM 3-22.9, Chapter 7
    - Advanced Marksmanship training
      - Identify,
      - Discriminate,
      - Engage Targets at < 50 meters
      - Urban Terrain
    - Section VI. Short Range Marksmanship
      - Firing Stance – Staggered legs, Toes forward, Shooting foot slight forward, Knees slightly bent, Shoulders square/back, Head Up, Both eyes open
      - High ready Position – best for lineup outside building/room – safety challenge
      - Low ready Position – best for movement inside building/room
      - Movement techniques
      - Kneeling
    - Day and Night Firing
    - Mixed Weapons
    - Reflexive firing – particular safety challenge
      - Movement – walking toward target
      - Turning toward target – must have proper range and discipline

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- ✓ Close Quarters Combat Training

Section VI. Short Range Marksmanship (cont.)

- Aiming techniques
  - Slow Aimed Fire
    Most accurate
    >25 meters
  - Rapid Aimed Fire
    Focus on target, raise sights
    0-15 m accurate rapid fire
  - Aimed Quick Kill
    aim over rear sight, down carry handle
    places top 1/2 to 2/3 of front sight post on target
  - Instinctive Fire – (Emergencies - Can't be practiced on LTA)
- LTA Requires point, aim, and fire methods
  - No un-aimed fire
  - Firing from the standing position may be conducted stationary and moving.
  - Dry-fire exercises, then w/ blanks, are required (Crawl-Walk-Run)
  - Maintain weapon safety until ready to fire
  - One safety NCO per soldier – unless significant fire, control back to dry fire

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- ✓ **Close Quarters Combat training**
  - **Section VI. Short Range Marksmanship (cont.)**
    - **Qualification Tables (examples)**

POSITION	ROUNDS FIRED	DISTANCE (meters)	METHOD	TIME STANDARD	LETHAL ZONE HIT STANDARD
Straight ahead	4	25	Single shot	None	3
Straight ahead	4	10	Single shot	None	3
Straight ahead	4	25	Controlled pair	None	3
Straight ahead	4	10	Controlled pair	None	3

Table 7-3. Familiarization (stationary).

POSITION	ROUNDS FIRED	DISTANCE (meters)	METHOD	TIME STANDARD	LETHAL ZONE HIT STANDARD
Facing left; turning right	4	25	Controlled pair	None	3
Facing right; turning left	4	25	Controlled pair	None	3
Straight ahead walking	4	10 start at 15	Controlled pair	None	3
Straight ahead	4	5	Controlled pair	None	3

Table 7-4. Familiarization (moving).

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- ✓ Close Quarters Combat training
  - Section VI. Short Range Marksmanship (cont.)
    - ◆ Qualification Tables (examples continued)

POSITION	ROUNDS FIRED	DISTANCE	METHOD	TIME STANDARD
Straight ahead	2	25m	Controlled pair	3 seconds from command "UP"
Left turn	2	25m	Controlled pair	3 seconds from command "UP"
Right turn	2	25m	Controlled pair	3 seconds from command "UP"
Straight ahead walking	2	10m Begin at 15m	Controlled pair	3 seconds from command "UP"
Straight ahead walking	2	5m Begin at 15m	Controlled pair	3 seconds from command "UP"
Straight ahead kneeling	4	10m Begin at 20m	Controlled pair	3 seconds from command "UP"
Straight ahead	2	25m	Controlled pair	3 seconds from command "UP"
Walk laterally to left	2	10m	Controlled pair	3 seconds from command "UP"

Table 7-5. Record and practice fire.

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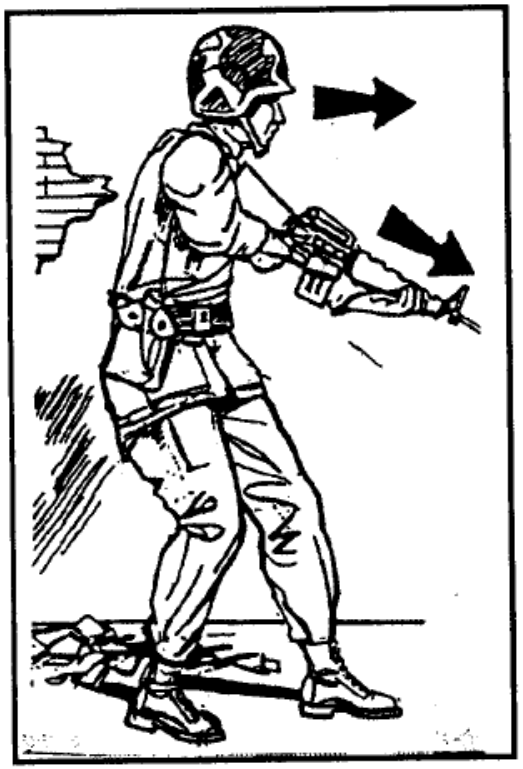
High ready Position – best for lineup outside building/room

Low ready Position – best for movement inside building/room



Safety Challenge! Requires discipline & controls

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Convoy Live Fire Training

- Initial Phases will be conducted at LTAs – Familiarization only – Static Vehicles – specific range approvals by USAREUR Safety
- Review of Range Construction, Vehicle types positions, SOP
- Update Range records to include vehicle types and positions

- Final Phases at Grafenwoehr –trails/SDZs/SOPs, 7th ATC Safety Appr

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Convoy Live Fire Training

- AMMUNITION.
  - Training units will ensure blank and live ammunition not mixed during training.
  - Units will ensure blank fire adapters removed prior to live fire.
  - Convoy OIC will ensure that all weapons and magazines used during “Red-Direct (Live ammunition/Direct fire engagement)” portions of training are inspected prior to clearing that portion of the range and before each blank fire iteration to ensure that no live ammunition is present.
  - High Explosive ammunition is not authorized for use during the Convoy Live Fire Exercise. Training units must ensure that they have requested and are using only training ammunition.
  - Various types of pyrotechnic devices are used during STX and live fire portions of this program. Training units ensure only qualified individuals use these devices. Unit responsibility to train own personnel.

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Convoy Training – Grafenwoehr

- 5-10. WEAPON DISCIPLINE.
- All personnel must maintain situational awareness at all times while driving on the trails and ranges under Red Direct conditions.
- At any one time, up to half of the weapon systems may be pointed off range during the convoy.
- Training units must stress the importance/enforce weapon discipline at all times to avoid accidental discharges or inappropriate engagement of targets.
- In the event of an accidental discharge or suspected round exiting the installation, all training will cease until authorized to resume training by the CG, 7th ATC IAW established practice for CMTC live fire-level events.
- Units should follow procedures and reporting requirements as described in GTA SOP #1, pages C25-C27.

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Train effectively and with realism,

And do it SAFELY!

Questions?

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What is New in Range Safety

Train effectively and with realism,

And do it SAFELY!